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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/423,085	11/02/1999	TAKAYUKI MITSUYA	1422-401P	6326

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EXAMINER
MADSEN, ROBERT A

ART UNIT	PAPER NUMBER
1761	19

DATE MAILED: 06/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/423,085	MITSUYA ET AL.	
	Examiner	Art Unit	
	Robert Madsen	1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 27, 2002 has been entered. Claims 13-23 remain pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsuya et al. (JP409009878A) in view of Levin (US 3881034), Yano et al. (US 4234619), Ueda et al. (US 5487911), and Hamaguchi (US 5127953).

See the reasons of record in Paper No. 11.

Claims13,15-17,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi (US 5127953) in view of Mitsuya et al. (JP409009878A),Yano et al. (US 4234619), and Levin (US 3881034).

Regarding claims 13 and 19, Hamaguchi teaches a powder composition comprising hydrophilic protein spherical particles (including derived from eggs) and a functional food material, such as oil, which is susceptible to deterioration, that is impregnated into the pores of the egg-protein particles , wherein the angle of repose preferably not greater than 60° (e.g. 43°, 44°,53°, 39°, etc in the Examples) in order to provide better flowability and the moisture level of preferably less than 10% (e.g. spherical protein particles having 5+/-2% moisture are shown in the Examples 4-6) in order to provide better oil absorption/retention (Column 4, lines 29-67, Column 5, line 67 to Column 6, line 19, Column 6, lines 35-47). Hamaguchi teaches by following these particular physical specification of the egg protein particles the particles can have a high oil content without exuding the oil and loosing flowability (Column 9, lines 13-63). Hamaguchi further teaches that the intended purpose of the particles is use as a food additive in items such as ice cream, cookies, breads, and curry , as recited in claim 19,*without* adversely affecting the flavor of the food (See examples, Column 3, line 34 to Column 4, line 25 ,Column 1, lines 35 to Column 3, line 4,). Hamaguchi teaches hydrophilic egg protein powders, but Hamaguchi is silent in teaching delipidated egg yolk powder per se.

However, using delipidated egg yolk powder(which is hydrophilic egg protein powder) impregnated with oil as a food additive is notoriously well known.

Mitsuya et al. are relied on as evidence of the conventional of impregnating delipidated egg yolk particles (made by spray-drying) with oil for the same recognized purpose as Hamaguchi: a food additive that is not oily or sticky (i.e. does not exude oil or lose flowability) (English Translation Pages 3-4)

Yano et al. are relied on as further evidence of the conventionality of impregnating spherical delipidated egg yolks particles (i.e. delipidated whole egg *or* egg yolks that have been spray-dried, which would result in a spherical shape) with oil. Like Hamaguchi, Yano et al. also teach a moisture level less than about 5%. (Abstract, Column 2, lines 10-14, I Example 3, Column 10, lines 45-65).

Levin is also relied on as further evidence of the conventionality of impregnating delipidated whole eggs (containing less than 5% fat) with oil to create a powder comprising delipidated egg yolks impregnated with oil. Also like Hamaguchi, Levin teaches the particles are substantially free of water (Abstract, Column 1, lines 10-65, Column 2, lines 35-50, claims).

Therefore, it would have been obvious to substitute delipidated egg yolks for the egg proteins of Hamaguchi since one would have been substituting one known type of fat-free, protein containing dehydrated egg particle for another for the same purpose: to impregnate with oil.

Regarding claim 15, Hamaguchi teaches the oil is 1 to 70% of the weight of the powder (Column 6, lines 53-65).

Regarding claim 16, Hamaguchi teaches oil, which is a substance that is susceptible to deterioration by light, heat or oxygen.

Regarding claim 17, Hamaguchi teaches hydrophilic based, and thus teaches the particles should have less than 10% lipids, which are hydrophobic.

Claim 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamaguchi (US 5127953) in view of Mitsuya et al. (JP409009878A) Yano et al. (US 4234619), and Levin (US 3881034), as applied to claims 13,15-17, and 19, further in view of Ueda et al. (US 5487911).

Hamaguchi teaches the egg protein particles perform better when they are spherical and *more* preferably pass through a 100 Tyler mesh, or are less than 15O microns (Column 5, lines 34-39,e.g. 100 microns in the Reference Example in Column 15). Although Hamaguchi does teach an average particle size of 100 microns and that other sizes may be desirable, Hamaguchi is silent in teaching any size particle size between 1 and 100 microns.

Ueda et al. is relied on as evidence of the desirability to form spherical dehydrated , 3-5% water, whole egg or egg yolk particles of a particle size between 5 and 100 microns (via spray-drying) wherein the particles may be blended with functional foods so that the functional foods are contained in the particles. Ueda et al. teaches larger size egg particles feel rough on the tongue and have an adverse flavor (Abstract, Column 1, lines 50-67, Column 2, lines 57-68, Column 3, line 1 to Column 4, line 4). Therefore, it would have been obvious to minimize the size of the delipidated, dehydrates spherical egg particle of Hamaguchi to between 1 and 100 microns since this size was known to minimize undesirable mouthfeel and flavor and one would have

been substituting one size of spherical dehydrated egg particle for another for blending with a functional food such that the functional food can be contained in the egg particle.

Regarding claim 18, although Hamaguchi teaches a porous particle (or has voids to retain the oil in Column 9, lines 12-26), Hamaguchi is silent in teaching any particular porous size. However, as discussed above in the rejection of claims 13 and 14, Mitsuya et al, Yano et al., and Ueda et al. teach spray-drying to form the particles. Therefore, as it was well known in the art that spray drying includes process parameter of air pressure and temperature, any pore size would have been an obvious result effective variable of these particular process parameters.

Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsuya et al. (JP409009878A) in view of Ueda et al. (US 5487911), Yano et al. (US 4234619), Hamaguchi (US 5127953), Likuski et al. (US 4971820), Broderick et al. (US 5139787), Maloney et al. (US 3505076), and Meusel (US 2786766).

Regarding claim 20, Mitsuya et al. teach mixing delipidated egg yolk with water spray drying the mixture (resulting in a porous particle) and mixing the particles with a functional food oil, which is susceptible to deterioration. The resulting particles are not oily or sticky (English translation, Pages 1-4). Although Mitsuya et al. are silent in teaching the spray dried delipidated egg yolk particles have an angle of repose such as less than 60°, moisture content such as 3-7% these characteristics would naturally result from spray drying delipidated egg yolk, these properties are consistent with spray

dried egg powders. Mitsuya et al are silent in mixing the egg yolk particles with the oil under vacuum.

Ueda et al., for example, is relied on as evidence of that spray drying a whole egg or egg yolk will result in a spherical and dehydrated (3-5% water) egg particle, which may be blended with functional foods so that the functional foods are contained in the particles. (Abstract, Column 1, lines 50-67, Column 2, lines 57-68, Column 3, line 1 to Column 4, line 4).

Yano et al. are relied on as further evidence of the conventionality of spray dried egg yolks particles (i.e. delipidated whole egg *or* egg yolks) having a moisture level less than about 5%, which also are blended with a functional food (Abstract, Column 2, lines 10-14, I Example 3, Column 10, lines 45-65).

Hamaguchi is relied on as evidence that spherical, low moisture egg based powders will have an angle of repose less than 60° even after absorbing a functional food such as oil (Column 6, lines 35-47, Column 4, lines 29-63, Examples).

Therefore, as evident by the prior art spray drying delipidated egg yolk would yield a spherical particle and a moisture content of 3-7%, and thus provide an angle of repose less than 60°.

With respect to mixing the egg yolk particles with the oil under vacuum, Likuski et al. are relied on as evidence of the conventionality of impregnating porous protein structures with oil without any significant deterioration in the protein structure or flowability and without the structure becoming oily. The porous protein is mixed with the oil under vacuum (Abstract, Column 1, lines23-32,54-56, Column 2, lines 34-56,

Column 3, lines 23-58). Borderick et al. are relied on as evidence of the conventionality of the general teaching of impregnating porous, spherical particles with a functional food (such as a flavor oil which is subject to deterioration) by means of reduced pressure (Abstract, Column 3, lines 28-37, Column 5, lines 39-55). Maloney et al. are relied on as evidence of the conventionality of blending a porous protein (i.e. cereal protein) structure with an oil, which is subject to deterioration, under vacuum will provide a greater amount of oil pick up (Column 3, line 60 to Column 5, line 5). Meusel is relied on as further evidence of the conventionality of blending a functional food subject to deterioration (such as a flavor oil) with a carrier under vacuum conditions improves the absorption of the functional food (Column 1, lines 15-40, Column 2, lines 21-45).

Therefore, it would have been obvious to modify the method Mitsuya et al. and use reduced pressure to blend/dry the particles since it was notoriously well known that reduce pressure will increase oil absorption of porous structures, including spherical and protein based structures. One would have been substituting one method of blending an oil with a porous carrier for the same purpose: absorption of the oil into the porous carrier.

Regarding Claim 21-23, Mitsuya et al. teach stirring the delipidated egg yolk particles with the functional food material as recited in claim 21, solvent extraction as recited in claim 22, and ethanol at 100-200 parts per 10 parts egg yolk (i.e. 1000-2000 parts per 100 parts yolk) to delipidate the yolk , which falls within the range of 400-5000 per 100 parts as recited in claim 23.

Response to Arguments

With respect to amendment to claim 13, further limiting the functional food to a group consisting of substances that have an undesirable flavor *and* substances that are subject to deterioration. The claims are rejected as noted based on substances that are subject to deterioration. In response to applicant's argument that there would be no suggestion to combine the Broderick reference (if one considers functional foods with an undesirable flavor), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it was well recognized in the art that oil is easily and more thoroughly drawn into the voids of a porous particle (of various compositions) by mixing under reduced pressure. With respect to the fact that the particle is intended to release or not, a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). However, both applicant and the prior art recognize mixing under reduced pressure improves the impregnation of porous particles with oil.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Madsen whose telephone number is (703)305-0068. The examiner can normally be reached on 7:00AM-3:30PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (703)308-3959. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0061.

Robert Madsen
Examiner
Art Unit 1761
June 16, 2002

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